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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,999	04/06/2004	Jeffrey Alan Kautzer	GEMS 0245 PUS	2998
27256	7590	05/05/2006	EXAMINER	
ARTZ & ARTZ, P.C. 28333 TELEGRAPH RD. SUITE 250 SOUTHFIELD, MI 48034			SONG, HOON K	
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Please find below and/or attached an Office communication concerning this application or proceeding.

8/

<b>Office Action Summary</b>	Application No. 10/708,999	Applicant(s) KAUTZER ET AL.	
	Examiner Hoon Song	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-19 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/20/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “a first and second emitters couple to a mount” as claimed in claim 1; “at least three sources coupled to the platform” as claimed in claim 15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. (note: in the specification the first and second emitters or at least three sources are coupled to a support 14).

The drawings are objected to under 37 CFR 1.83(a) because they fail to show “a cooling system directly cooling an anode” as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: "emitter couple to a mount" as claimed in claim 1 and "at least three sources coupled to the platform" as claimed in claim 15 are not described in the specification.

### ***Claim Objections***

Claims 8 and 14 are objected to because of the following informalities:

In claim 8 at line 1, "said angle" lacks proper antecedent basis.

In claim 14 at line 1-2, "said angle" lacks proper antecedent basis; at line 2, "said first emitter" and "said second emitter" lack proper antecedent basis.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Bailey et al. (US 6914959).

Regarding claim 1, Bailey teaches a scanning system comprising:

a mount (12);

a detector (24) coupled to said mount (12) and detecting a first X-ray flux (30a) and a second X-ray flux (30b) and generating at least one detector signal therefrom;

a first emitter (22a) coupled to said mount and generating said first X-ray flux at a first angle relative to said detector (figure 3);

a second emitter (22b) coupled to said mount and generating said second X-ray flux at a second angle relative to said detector (figure 3), wherein each emitter is collimated to view an entire field of view of said detector (column 6 line 35-38); and

a computer (80) activating said first emitter and said second emitter for electronic scanning such that said first emitter and said second emitter are activated in a source pattern including at least one of a sequential pattern, a random pattern, a simultaneous pattern, or a partial scan pattern, said computer receiving said at least one detector signal and generating an image signal therefrom (figure 1, column 6 line 35-38).

Regarding claim 2, Bailey teaches a mount (12) motor controller, wherein said mount comprises a platform (rotating gantry) moving said first emitter (22a) and said second emitter (22b) in response to signals from said mount motor controller (Bailey's gantry is considered to rotate by a motor system, figure 1).

Regarding claim 3, Bailey teaches said mount further defines a holding area (O-shaped gantry) for supporting patient tissue (figure 1).

Regarding claim 4, Bailey teaches said detector (24) further comprises a plurality of modules (detectors, 24) receiving said first X-ray flux and said second X-ray flux (column 6 line 35-38).

Regarding claim 9, Bailey teaches said computer generates said image signal as a function of emitter exposure time and a detector readout (36, reconstruction image).

Regarding claim 10, Bailey teaches said first emitter (22a) and said second emitter (22b) electronically gate (84) said first X-ray flux and said second X-ray flux (column 6 line 35-38).

Regarding claim 11, Bailey teaches said first emitter (22a) and said second emitter (22b) comprise thermal emission filaments (figure 1).

Regarding claim 12, Bailey teaches a stationary pre-patient collimator (figure 1, each of the x-ray sources 22a and 22b generating a collimated fan beams 30a and 30b) aligning said first X-ray flux and said second X-ray flux with respect to said detector (figure 1, column 6 line 35-38).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Perry et al. (US 6236709B1).

Regarding claim 13, Perry teaches a scanning system having a detector (20) comprising:

an arc-shaped support system (figure 3);

a plurality of X-ray emitters (24) adapted to generate a plurality of X-ray fluxes, said plurality of X-ray emitters coupled to said arc-shaped support system (figure 3) and arranged in an arc formation (figure 3) and directed toward a common focus at varying angles with respect to said focus, wherein each of said plurality of x-ray emitters is collimated to view an entire detector field of view (figure 3).

Regarding claim 14, Perry teaches said angle through which said first emitter and said second emitter sweep include a number of emission flux angles but not necessarily all angles required for a particular application (figure 3 shows a number of emission flux angle between any arbitrary two x-ray source and since each of the x-ray source are projecting entire of the x-ray detector, not all the emitters have to be used to generate an image).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perry et al. in view of Bailey.

Regarding claims 1 and 15, Perry teaches a scanning system comprising:

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a mount (10);

a detector (20) coupled to said mount (10) and detecting a first X-ray flux and a second X-ray flux and generating at least one detector signal therefrom;

a first emitter (40) coupled to said mount and generating said first X-ray flux at a first angle relative to said detector (figure 3);

a second emitter (40) coupled to said mount and generating said second X-ray flux at a second angle relative to said detector (figure 3), wherein each emitter is collimated to view an entire field of view of said detector (figure 3); and

a device activating said first emitter and said second emitter for electronic scanning such that said first emitter and said second emitter are activated in a source pattern including at least one of a sequential pattern, a random pattern, a simultaneous pattern, or a partial scan pattern, said computer receiving said at least one detector signal and generating an image signal therefrom (figure 3).

However Perry fails to teach the device is a computer.

Bailey teaches a computer (80) controlling a plurality of x-ray sources.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the x-ray sources of Perry with the controlling computer as taught by Bailey, since the controlling computer would improve accurate x-ray control.

Regarding claim 6, Perry teaches a plurality of stationary x-ray sources (40) generating a plurality x-ray fluxes at varying angles with respect to said detector (figure 3).

Regarding claim 8, Perry teaches said angle through which said first



emitter and said second emitter sweep include a number of emission flux angles

but not necessarily all angles required for a particular application (figure 3 shows a number of emission flux angle between any arbitrary two x-ray source and since each of the x-ray source are projecting entire of the x-ray detector, not all the emitters have to be used to generate an image).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bailey in view of Joshi et al. (US 6931092B2) and Lu et al. (US 6807348).

Regarding claim 5, Bailey fails to teach at least one of a liquid cooling system, wherein said detector is cooled by said liquid cooling system nor a cooling system directly cooling an anode of the scanning system.

Joshi teaches an x-ray CT system having a detector liquid cooling system (column 8 line 10-11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the CT detector of Bailey with the CT detector cooling system as taught by Joshi, since the detector cooling system would improve the heat management for stably operating the detector (column 1 line 59-64).

Lu teaches a direct anode cooling system (18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the x-ray source of Bailey with the cooling system as taught by Lu, since the cooling system would improve the heat management for stably operating the source.

### ***Response to Arguments***

Applicant's arguments filed 2/20/2006 have been fully considered but they are not persuasive.

In response to applicant's argument that Bailey fails to teach each emitter is collimated to view an entire field of view of the detector but the examiner disagrees.

Bailey teaches a first and second x-ray emitter mounted on a gantry and the emitters are projecting collimated x-ray beams onto a detector by alternatively operating the first and second emitters to share the detector (column 6 line 35-38). Accordingly, Bailey clearly teaches that each emitter is projecting collimated x-ray onto entire field of view of the detector and the applicant's argument is not persuasive.

Applicant's arguments with respect to claims 5 and 18 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to claims 13-15 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

Claims 16-19 are allowed over prior art.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 16-19, the prior art fails to teach a scanning system having a mount controller moving at least one of a mount or platform in response to adjustment signals, at least three x-ray sources coupled to the platform and arranged in an arc such that the at least three x-ray sources generating at least three different angles along the

arc with respect to the detector and a computer generating the adjustment signals as a function of parameters of a patient tissue as claimed in independent claim 16.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is (571) 272-2494. The examiner can normally be reached on 9:30 AM - 7 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HKS